

## Studying dense gluonic matter at LHCb

*Friday, 15 December 2023 09:00 (10 minutes)*

The proton is made up of quarks and gluons that interact via the strong nuclear force. These particles radiate low-energy gluons, resulting in high gluon densities and potentially producing a phase of dense gluonic matter. Studying matter at high gluon densities is crucial for understanding the dynamics of high-energy hadron collisions and could help reveal how gluons contribute to the emergent properties of hadrons. The LHCb detector's forward acceptance provides unprecedented sensitivity to the low- $x$  gluons that are expected to make up dense gluonic matter. I will present recent results from the LHCb experiment that probe the gluonic structure of protons and nuclei and discuss what these results have taught us about matter at high gluon densities.

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**Primary author:** BOETTCHER, Thomas (MIT)

**Presenter:** BOETTCHER, Thomas (MIT)

**Session Classification:** Lightning Round Talks (3)